General

Guideline Title

Physical therapy management of congenital muscular torticollis: an evidence-based clinical practice guideline: from the Section on Pediatrics of the American Physical Therapy Association.

Bibliographic Source(s)

Kaplan SL, Coulter C, Fetters L. Physical therapy management of congenital muscular torticollis: an evidence-based clinical practice guideline: from the Section on Pediatrics of the American Physical Therapy Association. Pediatr Phys Ther. 2013;25(4):348-94. [167 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

The evidence quality (I-V) and recommendation strength (Strong, Moderate, Weak, Theoretical/foundational, Best practice and Research) are defined at the end of the "Major Recommendations" field.

Identification and Referral of Infants with Congenital Muscular Torticollis (CMT)

A. Action Statement 1: Identify newborn infants at risk for CMT. Physicians, nurse midwives, obstetrical nurses, nurse practitioners, lactation specialists, physical therapists (PTs) or any clinician or family member must assess the presence of neck and/or facial or cranial asymmetry within the first 2 days of birth, using passive cervical rotation, passive lateral flexion, and/or visual observation as their respective training supports, when in the newborn nursery or at site of delivery. (Evidence Quality: I; Recommendation Strength: Strong)

Action Statement Profile

- Aggregate Evidence Quality: Level I. Based on the odds ratios (OR) and confidence intervals (CI) for prediction of CMT from facial asymmetry (OR: 21.75; CI: 6.60-71.70) and plagiocephaly (OR: 23.30; CI: 7.01-70.95).
- Benefits:
  - Early identification of infants at risk for CMT or other conditions that might cause asymmetries.
  - Early onset of intervention for infants with CMT if referred.
  - Reduced episode of care to resolve CMT, with consequent reduction in costs.
  - Reduced risk of needing more aggressive interventions (Botox or surgery) in the future.

- Risk, Harm, and Cost:
  - Potential of over identification of infants may increase costs.
  - Potential of increasing parent anxiety.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: None
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: Although parents may not be skilled in infant assessment, mothers who are breastfeeding may notice that the infant has greater difficulty feeding on one side, or may notice asymmetry in photographs, and these observations should trigger range of motion (ROM) screening by an attending clinician.
- Exclusions: None

B. Action Statement 2: Refer infants with asymmetries to physician and physical therapist. Physicians, nurse midwives, obstetrical nurses, nurse practitioners, lactation specialists, PTs, or any clinician or family member should refer infants identified as having positional preference, reduced cervical ROM, sternocleidomastoid muscle (SCM) masses, facial asymmetry, and/or plagiocephaly to their primary pediatrician and a PT as soon as the asymmetry is noted. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence supports that when intervention is started earlier, it takes less time to resolve the ROM limitations ($p < .001$) and there is less need for subsequent surgical intervention ($p < .005$). Authors suggest that stretching interventions are easier for parents to administer when infants are younger, before the neck musculature strengthens and cooperation declines.
- Benefits:
  - Early differential diagnosis to confirm CMT.
  - Early onset of intervention to resolve reduced ROM and asymmetries.
  - Early parental education to facilitate symmetrical development.
  - Greater infant cooperation with intervention in the first few months of life.
- Risk, Harm, and Cost:
  - Increased cost for treatment of asymmetries that some suggest may spontaneously resolve.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: Early referral to physical therapy ensures early onset of intervention, which strongly correlates with shorter episodes of care, greater success of conservative measures, and thus can lower overall costs of care. A pediatric PT will also screen and follow the infant for developmental delays, feeding challenges, and environmental factors that may be associated with or contribute to positional preference or CMT.
- Intentional Vagueness: For infants suspected of other causes of asymmetries (i.e., bony anomalies, fractures, neurological damage, or extra muscular masses), the PT should collaborate with the primary pediatrician to make a definitive diagnosis of CMT prior to onset of physical therapy interventions. The focus and prioritization of interventions may change depending on the type of limitations the infant presents with (e.g., neurological, musculoskeletal, cardiopulmonary, integumentary, and/or gastrointestinal).
- Role of Patient/Parent Preferences: Infant cooperation with stretching is easier in the first 2 months than when started after the infant develops greater head control, thus infant compliance is greater and parent adherence to home programs may be optimized.
- Exclusions: Infants suspected of having nonmuscular conditions that might cause asymmetrical or torticollis posturing should be fully examined by the appropriate specialists to rule out confounding diagnoses prior to initiating physical therapy.

B. Action Statement 3: Document infant history. Physical therapists should obtain a general medical and developmental history of the infant, including specific health history factors, prior to an initial screening. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: II
- Benefits: A complete history of the pregnancy, delivery, known medical conditions, developmental milestones, and daily management of the infant can provide information important to the diagnosis by the PT, prognosis, and intervention.
- Risk, Harm, and Cost: None
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: None
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: Parents/caregivers can provide much of the history through interview and preadmission information packets; however, obtaining medical records may provide specifics that oral histories may not.

- Exclusions: None

B. Action Statement 4: Screen infants. When a clinician, parent, or caretaker indicates concern about head or neck posture and/or developmental progression, PTs should perform a screen of the neurological, musculoskeletal, integumentary, and cardiopulmonary systems, including screens of vision, gastrointestinal functions, positional preference and the structural and movement symmetry of the neck, face, and head, spine and trunk, hips, upper and lower extremities, consistent with state practice acts. (Evidence Quality: II-IV; Recommendation strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: The benefits of screening infants with suspected CMT are based on a combination of level II-IV evidence and expert clinical consensus, within which selected procedures used by PTs to identify red flags have varying levels of evidence.
- Benefits:
  - Thorough screening can identify asymmetries and determine if they are consistent with CMT or not.
  - Screening for other causes of asymmetry (i.e., hip dysplasia, scoliosis, clavicle fracture, brachial plexus injury, congenital, and/or genetic conditions) facilitates referral to specialists.
  - For infants being treated for other conditions (i.e., brachial plexus injuries, reflux, and hip dysplasia) that are associated with higher risks for developing CMT, parents can receive preventative instruction for CMT.
- Risk, Harm, and Cost: The cost of a PT screening if the infant is not already being treated for other conditions
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: In some geographic locations or practice settings, particularly where autonomous practice is permitted, PTs may be the first to screen an infant for postural asymmetries. Infants may present for reasons other than head or neck postures, but observing overall symmetry is an element of a thorough physical therapy screen.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: None
- Exclusions: None

B. Action Statement 5: Refer infants from physical therapist to physician if red flags are identified. Physical therapists should refer infants to the primary pediatrician for additional diagnostic testing when a screen or evaluation identifies red flags (e.g., poor visual tracking, abnormal muscle tone, extra muscular masses, or other asymmetries inconsistent with CMT) or when, after 4 to 6 weeks of initial intense intervention, in the absence of red flags, little or no reduction in neck asymmetry is noted. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence based on cohort follow-up studies of moderate size.
- Benefits:
  - Infants with red flags are identified and can be co-managed by the primary pediatrician and other specialists.
  - Early coordination of care may resolve CMT more quickly and with less cost, as well as initiate appropriate intervention for conditions other than CMT.
  - Parent support starts earlier for effective home programming, parent education, and the balance of intervention with parental needs to enjoy and bond with their infant.
- Risk, Harm, and Cost:
  - Cost of care is increased in the cases where red flags are ruled out or the PT has misidentified red flags.
  - Additional family stress due to concerns about the infant having more serious health conditions.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: Level II evidence demonstrates that earlier diagnosis of CMT is better, but there is no literature that documents the risks and consequences of a lack of immediate follow-up for the 20% of infants who have conditions other than CMT. While the recommendation strength is categorized as moderate based on Level II evidence, the guideline development group (GDG) believes that referral to the primary pediatrician should be categorized as a must, when any red flags are identified to collaborate in the co-management of care of the infant who may have both CMT and other medical conditions.
- Intentional Vagueness: In settings with direct access to physical therapy services, parents may seek evaluation services for an infant with postural asymmetry without referral from the primary pediatrician. The GDG is intentionally vague about the range of 4 to 6 weeks as the amount of time that a PT should treat an infant who is not responding to intervention. Since younger infants typically change more quickly than older infants, the GDG recommends that infants younger than 2 months who are not responding to intervention should be referred to their pediatrician sooner than infants older than 2 months, who may require more time to respond to treatment. In either case, a PT should initiate communication with the primary pediatrician when there are red flags or when a child does not respond after 4 to 6 weeks of treatment.

- Role of Patient/Parent Preferences: None
- Exclusions: None

B. Action Statement 6: Request images and reports. Physical therapists should obtain copies of all images and interpretive reports, completed for the diagnostic workup of an infant suspected of having or diagnosed with CMT, to inform prognosis. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence based on cohort and outcome studies of moderate size.
- Benefits:
  - Images and imaging reports provide a comprehensive picture of the infant's medical status, including comorbidities.
  - Images provide visualization of the SCM fiber organization, and the location and size of fibrotic tissue.
  - Parents appreciate care that is coordinated and shared across disciplines.
- Risk, Harm, and Cost: None
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: Per the American Physical Therapy Association (APTA) Guide to Physical Therapist Practice, requesting relevant clinical reports on an infant's suspected or diagnosed condition is considered appropriate gathering of medical history.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: Parents need to formally release information for reports to be forwarded to the PT; parents may arrive with reports and images in their possession.
- Exclusions: None

Physical Therapy Examination of Infants with CMT

B. Action Statement 7: Examine body structures. Physical therapists should document the initial examination and evaluation of infants with suspected or diagnosed CMT for the following body structures:

- Infant posture and tolerance to positioning in supine, prone, sitting, and standing for body symmetry, with or without support, as appropriate for age. (Evidence Quality: II; Recommendation Strength: Moderate)
- Bilateral passive cervical rotation and lateral flexion. (Evidence Quality: II; Recommendation Strength: Moderate)
- Bilateral active cervical rotation and lateral flexion. (Evidence Quality: II; Recommendation Strength: Moderate)
- Passive and active ROM of the upper and lower extremities, inclusive of screening for possible hip dysplasia or spine/vertebral asymmetry. (Evidence Quality: II; Recommendation Strength: Moderate)
- Pain or discomfort at rest, and during passive and active movement. (Evidence Quality: IV; Recommendation Strength: Weak)
- Skin integrity, symmetry of neck and hip skin folds, presence and location of an SCM mass, and size, shape, and elasticity of the SCM muscle and secondary muscles. (Evidence Quality: II; Recommendation Strength: Moderate)
- Craniofacial asymmetries and head/skull shape. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Preponderance of level II studies based on well-conducted prospective and retrospective cohort follow-up studies of small to moderate sample sizes.
- Benefits:
  - Confirms the diagnosis of CMT and identifies other problems such as hip dysplasia, plagiocephaly, brachycephaly, scoliosis, brachial plexus injury, or other orthopedic and medical conditions.
  - Determines the extent of primary and secondary muscle involvement, to estimate prognosis.
  - Establishes baselines to measure progress of ROM, strength and alignment, and infant's ability to incorporate movement through available ranges.
  - Facilitates systematic linking of interventions to identified impairments.
  - Standardizes measurement and documentation of body structure limitations from CMT to evaluate group outcomes across clinical settings.
- Risk, Harm, and Cost:
  - Examination of passive cervical rotation may result in SCM snapping or a sense of "giving way" in approximately 8% of infants.
  - The infant may feel some discomfort or pain, and/or may cry due to restricted movement, discomfort with ROM tests, or intolerance of general handling.
  - In infants with undiagnosed orthopedic conditions (e.g., osteogenesis imperfecta, hemivertebrae, or cervical instability), there is a risk

that overly aggressive testing of passive ROM could cause secondary injury, though this has not been reported.

- Value Judgments: The evidence for selected measurement approaches varies in strength; however, measures of passive and active ROM, strength, and posture must be documented as part of any physical therapy examination and are consistent with current standards of practice. For ROM measurement, the GDG recognizes that clinical practicality has to be weighed against the desire for the most reliable measures. Use of photography, head markers, and other devices to increase measurement reliability may create undue burdens for the infant, the family, and the PT in daily clinical practice. While there is only moderate to weak evidence to justify the measurement of active cervical ROM, active ROM of the upper and lower extremities, pain or discomfort, condition of the skin folds, condition of the SCM and cervical muscles, and head shape, a lack of evidence is not equated with a lack of clinical relevance. Further, documentation of these initial examination findings sets the baseline for regularly scheduled objective reassessment and outcome measurement.
- Intentional Vagueness: There is no vagueness as to *what* should be documented. There is variability as to how selected body structures should be measured, due to the limited number of valid tools or methods.
- Role of Patient/Parent Preferences: During testing, parents may perceive that the baby experiences discomfort or that testing positions could potentially harm the baby, resulting in requests to stop testing if the baby is crying. The clinician must be aware and responsive to the parents' perceptions; it is incumbent on the clinician to fully explain the importance of the measures and the safety precautions used, so that parents and infants can comfortably and accurately complete the testing procedures. Clinicians may need to provide the infant with breaks during testing to obtain the baby's best performance and most reliable measures. Including the parent in the test procedures may help elicit the infant's best performance, calm the infant if under stress, and generally assist with building trust between the PT and the infant.
- Exclusions: None
- Note: Table 3 in the original guideline document provides a summary of the evidence on measurement.

P. Action Statement 8: Classify the level of severity. Physical therapists and other health care providers should classify the level of CMT severity choosing 1 of 7 proposed grades (see Figure 2 in the original guideline document). (Evidence Quality: V; Recommendation Strength: Best Practice)

Action Statement Profile

- Aggregate Evidence Quality: Clinical and research experience of the GDG.
- Benefits:
  - Classifying levels of severity may assist with prognosis and parent education.
  - The 7 grade levels integrate 2 of the strongest factors related to outcome: the infant's age at which treatment is initiated and the type of CMT the infant presents with.
  - More precise classification grades are needed to compare outcomes across research samples.
- Risk, Harm, and Cost: None
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: The GDG recommends the use of its classification of CMT severity, recognizing that it has only been minimally piloted, and that further research is needed to validate the 7 levels.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: None
- Exclusions: None

B. Action Statement 9: Examine activity and developmental status. During the initial and subsequent examinations of infants with suspected or diagnosed CMT, PTs should document the types of and tolerance to position changes, and examine motor development for movement symmetry and milestones, using an age-appropriate, valid, and reliable standardized tool. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence from cohort and outcome studies.
- Benefits:
  - Early detection of developmental delays, neurological impairments, movement capabilities, muscle function in developmental positions, and infant preferences help to direct the plan of care.
  - Provides opportunities for parent education on typical development, importance of prone playtime, alternative positioning, and reinforcement of parent adherence to home programs.
  - Standardizes measurement and documentation of motor activity to evaluate group outcomes across clinical settings for infants with CMT.
- Risk, Harm, and Cost: No risks or harms.
- Some standardized tests are proprietary and thus have associated costs for the forms and test manuals. Proficiency in administering the tests

may require training.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: Measures of the infant's activity, symmetry of movements, and developmental progression *must* be documented as part of any physical therapy examination. These are consistent with professional standards of practice and clinical practice specific to CMT.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: Parents may perceive that the baby experiences discomfort from the testing positions or that the prone position is harmful, and may request that testing not continue if the baby is crying. The clinician should fully explain the importance of varying the infant's positions, including use of prone positioning, which may be avoided by parents due to misinterpretation of *Back to Sleep* instructions.
- Exclusions: None

B. Action Statement 10: Examine participation status. The physical therapist should document the parent/caregiver responses regarding:

- Whether the parent is alternating sides when breast or bottle-feeding the infant. (Evidence Quality: II; Recommendation strength: Moderate)
- Sleep positions. (Evidence Quality: II; Recommendation Strength: Moderate)
- Infant time spent in prone. (Evidence Quality: II; Recommendation Strength: Moderate)
- Infant time spent in equipment/positioning devices, such as strollers, car seats, or swings. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: a predominance of level II prospective cohort follow-up studies with small sample sizes.
- Benefits:
  - Identifies routine passive positioning that facilitates asymmetrical positions of the head, neck, and trunk.
  - Provides information about the general developmental activities and position preferences of the infant.
  - Provides opportunities for parent/caregiver education and counseling about positioning and activities that facilitate symmetrical development.
- Risk, Harm, and Cost: None
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: None
- Intentional Vagueness: None
- Role of Parent or Patient Preferences: Parents and caregivers must accurately describe the infant's daily care routines, so positioning and home exercise programs can be tailored to maximize implementation opportunities. Fear of blame for the infant's condition may lead parents/caregivers to provide inaccurate descriptions. Clinicians should be sensitive to this and may need to build a level of trust with the parents/caregivers before an accurate description can be obtained.
- Exclusions: None

B. Action Statement 11: Determine prognosis. Physical therapists should determine the prognosis for resolution of CMT and the episode of care after completion of the evaluation, and communicate it to the parents/caregivers. Prognoses for the extent of symptom resolution, the episode of care, and/or the need to refer for more invasive interventions are related to the age of initiation of treatment, classification of severity (see Figure 2 in the original guideline document), intensity of intervention, presence of comorbidities, rate of change, and adherence to home programming. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II-IV cohort studies and case reports with long-term follow-up.
- Benefits:
  - Classifies the severity of CMT in the infant for communication purposes.
  - Links the examination results and severity level to classification and associated interventions and/or referrals.
  - Provides guidance on the frequency and dosage of intervention(s) across episodes of care.
  - Allows parents/caregivers to psychologically prepare for what to expect from the PT and the range of possible outcomes for their infants.
  - Assists parents with understanding and implementing the plan of care.
  - Articulates the relationship of examination results to expected outcomes for documentation, including letters of medical necessity.
- Risk, Harm, and Cost: Lack of determining a prognosis by either the referring pediatrician or the PT may lead to underestimation of the severity of CMT, resulting in inadequate or untimely delivery of care and/or parent/caregiver confusion about what to expect.
- Benefit–Harm Assessment: Preponderance of benefit

- Value Judgments: The GDG supports the need to document the potential for improvement of CMT prior to initiating intervention. The PT's prognosis is the bridge between the evaluation of initial examination results and classification of severity with the associated interventions within an expected time frame; thus, the prognosis should include both objective outcomes to achieve, and time frames in which to achieve them. Articulating the prognosis for physical therapy management ensures clear communication of expectations for the parents/caregivers, and sets objective milestones as a basis for referral back to the primary health care provider if outcomes are not met.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: The prognosis for improvement, or the time to achieve change, may need to be adjusted based on the parent/caregiver ability to comply with a home program designed by the PT.
- Exclusions: None

Physical Therapy Intervention for Infants with CMT

B. Action Statement 12: Provide the following 5 components as the first-choice intervention. The physical therapy plan of care for the infant with CMT or postural asymmetry should minimally address these 5 components:

- Neck passive range of motion (PROM). (Evidence Quality: II; Recommendation Strength: Moderate)
- Neck and trunk active ROM. (Evidence Quality: II; Recommendation strength: Moderate)
- Development of symmetrical movement. (Evidence Quality: II; Recommendation Strength: Moderate)
- Environmental adaptations. (Evidence Quality: II; Recommendation Strength: Moderate)
- Parent/caregiver education. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II cohort and outcome studies.
- Benefits to the Infant:
  - Increases infant's active and passive ROM.
  - Facilitates normal and prevents, reduces, or eliminates asymmetrical postural, gross motor, skeletal, cognitive, sensory, and visual development.
  - Reduces use of environmental supports/equipment that may increase asymmetry.
  - Avoids or minimizes need for future, more invasive procedures.
- Benefits to the Parent:
  - Enables parents to be active and effective caregivers.
  - Education empowers parents to implement interventions between physical therapy appointments.
  - Education helps parents to understand the factors that contribute to asymmetry.
  - Balances use of supine as the preferred infant position by parents, overemphasized by the *Back to Sleep* campaign, with activities in prone, side lying, and sitting during supervised, wakeful activities.
  - Provides parents with information about typical developmental milestones.
  - Reduces potential overall cost of care for CMT with early intense treatment.
- Risk, Harm, and Cost:
  - Stretching of the SCM can result in muscle snapping, which may or may not cause momentary infant discomfort; however, the documented long-term outcomes are positive.
  - Cost of care may be a burden for families.
  - Parents/caregivers may apply interventions incorrectly.
  - Parents might ease up on home exercises if they perceive that the PT is implementing the treatment.
- Value Judgments: None
- Intentional Vagueness: The duration of treatment is dependent on the classification of severity of the CMT, with mildest forms requiring an average of 2 to 3 months of treatment, and more severe forms requiring up to 5 to 6 months of treatment. Infants who receive surgical interventions may require an additional 4 to 6 months of treatment. There are no dosage formulae to link technique and duration of stretches, repetitions within each treatment session, frequency of treatment sessions per day, overall duration of care, and frequency of clinic visits, including tapering schedules, to CMT severity classifications; thus, the GDG cannot define "intense treatment" except that stretching should be frequent through the day, every day.
- Role of Parent/Caregiver or Patient Preferences: Parent/caregiver adherence to the plan of care is essential for achieving early intense treatment dosages.
- Exclusions: None
- Note: Table 4 in the original guideline document provides a summary of evidence on passive stretching.

C. Action Statement 13: Provide supplemental intervention(s), after appraising appropriateness for the infant, to augment the first-choice intervention. Physical therapists may add supplemental interventions, after evaluating their appropriateness for treating CMT or postural asymmetries, as adjuncts to the first-choice intervention when the first-choice intervention has not adequately improved range or postural alignment, and/or when access to services is limited, and/or when the infant is unable to tolerate the intensity of the first-choice intervention, and if the PT has the appropriate training to administer the intervention. (Evidence Quality: III; Recommendation Strength: Weak)

Action Statement Profile

- Aggregate Evidence Quality: Level II-IV studies with small sample sizes, and case reports.
- Benefits: On an individual basis, combining supplemental interventions supported by weaker evidence with first-choice interventions:
    - May be effective in addressing asymmetrical postures.
    - May accommodate an infant's temperament or tolerance to treatment.
    - May improve ROM.
    - May avoid or minimize the need for future, more invasive procedures.
    - May increase parent/caregiver ability to implement home program.
- Risk, Harm, and Cost:
    - Selected supplemental interventions (i.e., microcurrent, kinesio tape, myokinetic stretching, or Tscharnuter Akademie for Motor Organization [TAMO]) should only be applied by clinicians skilled in that specific technique or modality.
    - There may be an added burden to the parent(s)/caregivers to learn additional intervention techniques.
    - Some interventions may not be covered by insurance.
    - Some approaches may increase the cost of care.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: The GDG recommends these approaches as supplements to more established interventions due to the limited number of studies and the small sample sizes in the available studies.
- Intentional Vagueness: Whereas selected interventions are presented, there is no evidence as to when it is best to add them to a plan of care.
- Role of Parent/Caregiver or Patient Preferences: Parents may inquire about different interventions for the treatment of CMT.
- Exclusions: None

B. Action Statement 14: Refer for consultation when outcomes are not fully achieved. Physical therapists who are treating infants with CMT or postural asymmetries should initiate consultation with the primary pediatrician and/or specialists about alternative interventions when the infant is not progressing. These conditions might include when asymmetries of the head, neck, and trunk are not resolving after 4 to 6 weeks of initial intense treatment; after 6 months of treatment with only moderate resolution; or if the infant is older than 12 months on initial examination and either facial asymmetry and/or a 10° to 15° difference persists between the left and right sides; or the infant is older than 7 months on initial examination and a tight band or SCM mass is present; or if the side of torticollis changes. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence based on cohort follow-up studies.
- Benefits:
    - Alternative invasive interventions (e.g., Botox or surgery) can be considered to resolve the current asymmetries and prevent further progression of deformities and compensations.
    - Provides the family/caregivers with alternative management strategies to help resolve asymmetries.
- Risk, Harm, and Cost: The consultations and possible subsequent interventions may add to the cost of care.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: Collaborative and coordinated care is in the best interest of the infant and family-centered care.
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: The age of the infant, the severity of the CMT, the rate of changes, the needs of the family, the cooperation and developmental needs of the infant, and the available resources of the family/caregivers should help to determine the episode of care before an infant is referred back to the primary pediatrician for consideration of alternative interventions.
- Exclusions: None

<u>Physical Therapy Discharge and Follow-Up of Infants with CMT</u>

B. Action Statement 15: Document outcomes and discharge infants from physical therapy when criteria are met. Physical therapists should document outcome measures and discharge the infant diagnosed with CMT or asymmetrical posture from physical therapy services when the infant has full passive ROM within 5° of the nonaffected side, symmetrical active movement patterns throughout the passive range, age-appropriate

motor development, no visible head tilt, and the parents/caregivers understand what to monitor as the child grows. (Evidence Quality: II-III; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: levels II-III with evidence from long-term follow-up studies and cohort and case reports of unresolved CMT in infancy that later require surgical intervention.
- Benefits: Use of these criteria for discharge reasonably ensures that:
  - The CMT has resolved within accepted ranges of measurement error.
  - There are no lingering secondary compensations or developmental delays.
  - The parents/caregivers know how to assess for regression as the infant grows and when to contact their primary pediatrician and/or the PT for reexamination.
  - Discharge documentation reflects the expected outcomes of care, relative to the baseline measures taken at the initial examination.
- Risk, Harm, and Cost: There is an unknown amount of risk that discharge from physical therapy services with 5º residual asymmetry will progress to other anatomical areas (cervical scoliosis, craniofacial) or return as the infant grows. There appears to be a slightly higher risk than general prevalence of developmental coordination disorder and attention-deficit hyperactivity disorder that is not associated with the type or severity of the CMT, although more studies are needed.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: None
- Intentional Vagueness: None
- Role of Patient/Parent Preferences: Parents/caregivers need to be educated about the importance of screening for asymmetries as the child grows and becomes more active against gravity. They should be advised that preferential positioning is often observed during times of fatigue or illness, and that reevaluation is warranted if it persists.
- Exclusions: None

B. Action Statement 16: Provide a follow-up screening of the infant 3 to 12 months post-discharge. Physical therapists who treat infants with CMT should examine positional preference, the structural and movement symmetry of the neck, face and head, trunk, hips, upper and lower extremities, and developmental milestones, 3 to 12 months following discharge from physical therapy intervention or when the child initiates walking. (Evidence Quality: II; Recommendation Strength: Moderate)

Action Statement Profile

- Aggregate Evidence Quality: Level II evidence based on longitudinal follow-up studies with moderately large samples, reasonable follow-up periods, and reliable outcome measures.
- Benefits:
  - Detection of postures and movement consistent with relapsing CMT, particularly as infants initiate walking and move against gravity.
  - Detection of developmental delays.
  - Ability to restart home exercise programs if asymmetry is identified.
  - Screening identifies causes of asymmetry, other than CMT, if asymmetries reappear.
- Risk, Harm, and Cost: A single follow-up visit will minimally add to the cost of care.
- Benefit–Harm Assessment: Preponderance of benefit
- Value Judgments: A single follow-up physical therapy visit for infants with a history of CMT is consistent with the APTA Guide to Physical Therapist Practice that describes the roles of a PT to include prevention of recidivism and preservation of optimal function.
- Intentional Vagueness: The recommended time at which follow-up is scheduled (3-12 months) is wide because the age of the infant at discharge will vary. For younger infants, discharged between 4 to 6 months of age, follow-up may need to occur sooner after discharge when the infants are initiating standing and walking. It is not known how far out into early childhood that screening should occur. Literature suggests that by 18 months, infants with delays at 10 months catch up with their peers; however, longer follow-up suggests that some infants are at greater risk for persistent neurodevelopmental conditions such as developmental coordination disorder and attention deficit hyperactivity, which may not become evident until the early school years.
- Role of Patient/Parent Preferences: Parents/caregivers may choose to forgo a follow-up visit if it places undue burden on the family for travel, time, or finances. Parents should be advised at discharge of the small chance that developmental conditions may become evident when the child enters school, and parents should be educated to observe for persistent asymmetry.
- Exclusions: None

Definitions:

Level of Evidence

Level	Criteria
I	Evidence obtained from high-quality diagnostic studies, prognostic or prospective studies, cohort studies or randomized controlled trials, meta-analyses or systematic reviews (critical appraisal score >50% of criteria)
II	Evidence obtained from lesser-quality diagnostic studies, prognostic or prospective studies, cohort studies or randomized controlled trials, meta-analyses or systematic reviews (e.g., weaker diagnostic criteria and reference standards, improper randomization, no blinding, <80% follow-up) (critical appraisal score <50% of criteria)
III	Case-controlled studies or retrospective studies
IV	Case studies and case series
V	Expert opinion

Grades of Recommendation for Action Statements

Grade	Recommendation	Quality of Evidence
A	Strong	A preponderance of level I studies, but at least 1 level I study directly on the topic supports the recommendation.
B	Moderate	A preponderance of level II studies, but at least 1 level II study directly on the topic supports the recommendation.
C	Weak	A single level II study at <25% critical appraisal scores or a preponderance of level III and IV studies, including consensus statements by content experts support the recommendation.
D	Theoretical/foundational	A preponderance of evidence from animal or cadaver studies, from conceptual/theoretical models/principles, or from basic science/bench research, or published expert opinion in peer-reviewed journals supports the recommendation.
P	Best practice	Recommended practice based on current clinical practice norms, exceptional situations where validating studies have not or cannot be performed, and there is a clear benefit, harm or cost, and/or the clinical experience of the guideline development group.
R	Research	An absence of research on the topic, or conclusions from higher-quality studies on the topic are in disagreement. The recommendation is based on these conflicting conclusions or absent studies.

Clinical Algorithm(s)

The following algorithms are provided in the original guideline document:

- Referral flow diagram
- Congenital muscular torticollis classification grades and decision tree

Scope

Disease/Condition(s)

Congenital muscular torticollis (CMT)

Guideline Category

Diagnosis

Evaluation

Management

Rehabilitation

Screening

Treatment

Clinical Specialty

Family Practice

Nursing

Obstetrics and Gynecology

Pediatrics

Physical Medicine and Rehabilitation

Intended Users

Advanced Practice Nurses

Health Care Providers

Health Plans

Nurses

Occupational Therapists

Patients

Physical Therapists

Physician Assistants

Physicians

Students

Guideline Objective(s)

- To describe the evidence supporting physical therapy management of congenital muscular torticollis (CMT), including screening, examination, evaluation, diagnosis, reasons to refer, prognosis, intervention, discharge, and long-term assessment of outcomes
    - To define and classify common CMT impairments of body functions and structures, activity limitations and participation restrictions and, where possible, align descriptions with International Classification of Functioning, Disability and Health (ICF) terminology
    - To identify appropriate outcome measures for CMT to establish baseline measures and assess changes resulting from physical therapy interventions
    - To identify interventions supported by current best evidence to address impairments of body functions and structures, activity limitations, and participation restrictions associated with CMT
- To create a reference publication for physical therapists (PTs), physicians, families and caretakers, other early childhood or health care service providers, academic instructors, clinical instructors, students, policymakers, and payers that describes, using internationally accepted terminology, best current practice of pediatric PT management of CMT
- To identify areas of research that are needed to improve the evidence base for physical therapy management of CMT

Target Population

Infants and children with congenital muscular torticollis (CMT)

Interventions and Practices Considered

1. Identification and referral of infants with congenital muscular torticollis (CMT)
    - Identifying newborn infants at risk for CMT
    - Referring infants with asymmetries to physician and physical therapist
    - Documenting infant history (general medical and developmental history)
    - Screening infants' neurological, musculoskeletal, integumentary, and cardiopulmonary systems, including screens of vision, gastrointestinal functions, positional preference and the structural and movement symmetry of the neck, face, and head, spine and trunk, hips, upper and lower extremities
    - Referring infants from physical therapist to physician if red flags are identified
    - Requesting images and reports completed for the diagnostic workup of an infant suspected of having or diagnosed with CMT, to inform prognosis
2. Physical therapy examination of infants with CMT
    - Examination of body structures
    - Classifying the level of CMT severity
    - Examination of activity and developmental status
    - Examination of participation status: documentation of parent/caregiver responses regarding infant positioning
    - Determination of prognosis
3. Physical therapy interventions for infants with CMT
    - Providing the following 5 components as the first-choice intervention:
        - Neck passive range of motion (PROM)
        - Neck and trunk active range of motion (ROM)
        - Development of symmetrical movement
        - Environmental adaptations
        - Parent/caregiver education
    - Providing supplemental intervention(s), after appraising appropriateness for the infant, to augment the first-choice intervention
    - Referral for consultation when outcomes are not fully achieved
4. Physical therapy discharge and follow-up of infants with CMT
    - Documentation of outcomes and discharging infants from physical therapy when criteria are met
    - Providing a follow-up screening of the infant 3 to 12 months post-discharge

Major Outcomes Considered

- Range of cervical motion
- Cervical muscle strength
- Range of motion (ROM) and strength measures
- Symmetrical posture
- Symmetrical motor development
- Pain
- Functional activity
- Treatment durations
- Need for surgical intervention
- Parent satisfaction with physical therapy

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The guideline development group (GDG), volunteers from the Section on Pediatrics (SoP) Knowledge Translation Task Group, and clinicians from the SoP were invited to conduct literature searches on congenital muscular torticollis (CMT) and submit the search histories and results to a dedicated email account. This provided a range of search strategies and access to a wider range of databases. The combined comprehensive literature search used these key words separately and in combination: congenital muscular torticollis, torticollis, plagiocephaly, infant asymmetry, cervical ROM, physical therapy, physiotherapy, and exercise. The databases include: MEDLINE(R), CINAHL, EBM Reviews–Cochrane Database of Systematic Reviews 2005 to June 2010, EBM Reviews–ACP Journal Club 1991 to June 2010, EBM Reviews–Database of Abstracts of Reviews of Effects 2nd Quarter 2010, EBM Reviews–Cochrane Central Register of Controlled Trials 2nd Quarter 2010, EBM Reviews–Cochrane Methodology Register 3rd Quarter 2010, EBM Reviews–Health Technology Assessment 3rd Quarter 2010, EBM Reviews–NHS Economic Evaluation Database 3rd Quarter 2010, EMBASE 1980 to 2010 Week 32, ERIC 1965 to July 2010, Health and Psychosocial Instruments 1985 to July 2010, PsycINFO 1806 to August Week 2 2010, PubMed Clinical Queries, PEDro, Google Scholar, and the Web of Science. Additional sources were identified using the same key words by searching specific journals, manual searching of article and textbook reference lists, and through Google and Google Scholar. Studies published through May 2013 were included in the CPG; a reference librarian from the University of Southern California validated the search for the years 1990 to 2012. Operational definitions were adopted for clarity of writing (see Appendix 2 of the original guideline document).

Articles were included if they were written in English and if they informed the diagnosis, examination, intervention, or prognosis of CMT as related to physical therapy. Research designs included randomized controlled trials (RCTs), cohort, case-control, case series, and case studies. Study outcomes included range of cervical motion, cervical muscle strength, range of motion (ROM) and strength measures, posture, motor development, treatment durations, need for surgical intervention, and parent satisfaction with physical therapy. Articles were excluded if they focused only on plagiocephaly, did not report data directly related to physical therapy diagnosis, intervention or prognosis for CMT, or were poster or presentation abstracts.

Number of Source Documents

A total of 193 articles were reviewed, and a total of 167 articles informed this document.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Level of Evidence

Level	Criteria
I	Evidence obtained from high-quality diagnostic studies, prognostic or prospective studies, cohort studies or randomized controlled trials, meta-analyses or systematic reviews (critical appraisal score >50% of criteria)
II	Evidence obtained from lesser-quality diagnostic studies, prognostic or prospective studies, cohort studies or randomized controlled trials, meta-analyses or systematic reviews (e.g., weaker diagnostic criteria and reference standards, improper randomization, no blinding, <80% follow-up) (critical appraisal score <50% of criteria)
III	Case-controlled studies or retrospective studies
IV	Case studies and case series
V	Expert opinion

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Critical Appraisal Process

The critical appraisal forms used for diagnostic and intervention literature are based on adaptations from Fetters and Tilson and have been described previously. Selected diagnosis and intervention articles were critically appraised by the guideline development group (GDG) to establish the test standards. Volunteers completed critical appraisals of the test articles to establish interrater reliability. Volunteers qualified to be appraisers with agreement of 90% or more. Appraisers were randomly paired to read each of the remaining diagnostic or intervention articles. Each dyad compared scores for agreement and submitted a single critical appraisal form when complete. Discrepancies in scoring were negotiated by the readers. In the event that a score could not be agreed on, a member of the GDG made the final determination.

Levels of Evidence

The levels of evidence evolved from the American Physical Therapy Association (APTA) Section on Orthopedics to incorporate critical appraisal scores.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The guideline development group (GDG) was appointed by the Section on Pediatrics (SoP) to develop a guideline to address physical therapist (PT) roles in the management of congenital muscular torticollis (CMT). The procedures are documented in *Pediatric Physical Therapy* and were derived from the review of selected guideline development manuals in order to meet the goals of the SoP and to produce guidelines that parallel international processes (see the "Availability of Companion Documents" field).

Determining Purpose, Scope, and Outline of Content

In 2011, the GDG solicited topics from the SoP leadership and members of its Knowledge Translation Task Group to identify what clinicians expected a clinical practice guideline (CPG) on CMT to cover. Fifty topics were organized into an online survey. Fourteen members of the SoP Knowledge Translation Task Group and clinicians who expressed interest in the CMT guidelines completed the survey, ranking the importance of each topic. These rankings influenced the scope and outline of the CPG content; 45 of the 50 topics are addressed in this document. (Survey results are available from the authors.)

Levels of Evidence

Recommendation grades are derived to be consistent with the Building Recommendations In a Developer's Guideline Editor (BRIDGE-Wiz) software deontics. BRIDGE-Wiz is designed to generate clear and implementable recommendations consistent with the Institute of Medicine recommendations for transparency. The GDG believes it is important to consider all controlled research designs (randomized controlled trials, meta-analyses, systematic reviews, diagnostic, prognostic, prospective, and cohort studies) to equalize their importance in rehabilitation decision making. While it is recognized that experimental studies are the only designs that suggest causality, the difference between level I and II evidence is based on methodological rigor within each design, rather than solely on the study design. Thus, the score from the critical appraisal process determines whether an intervention or diagnosis study is a level I or II.

Theoretical/foundational (designated by D in the Grades of Recommendation for Action Statements) and practice recommendations (designated by P in the Grades of Recommendation for Action Statements) are not generated with BRIDGE-Wiz. The former are based on basic science or theory, and the latter are determined by the GDG to be representative of current physical therapy practice or exceptional situations that exist for which studies cannot be performed.

Research recommendations (designated by R in the Grades of Recommendation for Action Statements) are provided by the GDG to identify missing or conflicting evidence, for which studies might improve measurement and intervention efficacy, or minimize unwarranted variation.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendation for Action Statements

Grade	Recommendation	Quality of Evidence
A	Strong	A preponderance of level I studies, but at least 1 level I study directly on the topic supports the recommendation.
B	Moderate	A preponderance of level II studies, but at least 1 level II study directly on the topic supports the recommendation.
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R	Research	An absence of research on the topic, or conclusions from higher-quality studies on the topic are in disagreement. The recommendation is based on these conflicting conclusions or absent studies.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The Appraisal of Guidelines for Research and Evaluation II (AGREE II) Review

This clinical practice guideline (CPG) was evaluated by the third author and 2 external reviewers using AGREE II. AGREE II is an established instrument designed to assess the quality of clinical practice guidelines using 23 items in 6 domains (see Table, Supplemental Digital Content 1, available at http://links.lww.com/PPT/A48 [see also the "Availability of Companion Documents" field]). Each item is rated using a 7-point scale, with 7 representing the highest score. Each item includes specific criteria, although reviewer judgment is necessary in applying the criteria. The AGREE II appraisal process supported an iterative process to improve the quality of the guideline. Domain scores for the congenital muscular torticollis (CMT) CPG ranged from 98% to 67%. The 3 reviewers unanimously agreed to recommend the guideline for use. Scores were discussed by the guideline development group (GDG); where possible, items were addressed in the CPG following the AGREE II reviews. Thus, the percentages are likely higher in the final version of the CPG.

External Review Process by Stakeholders

This CPG underwent 3 formal reviews. First draft reviewers were invited stakeholders representing medicine, surgery, nursing, midwifery, physical therapy (PT) clinicians and researchers, and a parent representative. The second draft was posted for public comment on the American Physical Therapy Association (APTA) Section on Pediatrics (SoP) website; notices were sent via email and an electronic newsletter to SoP members, literature appraisers, and clinicians who inquired about the CPG during its development. Two *Pediatric Physical Therapy* journal reviewers read the third draft. Comments from each round of reviews were considered for successive revisions.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Early identification and treatment of congenital muscular torticollis (CMT) is critical for early correction, early identification of secondary or concomitant impairments, and prevention of future complications.
- Early referral to physical therapy translates to earlier intervention and prevention of secondary sequelae, and, by reducing treatment duration and avoiding additional or more invasive interventions, is cost-effective.
- Standardizes measurement and documentation of body structure, activity and participation limitations from CMT to evaluate group outcomes across clinical settings.
- Parent support starts earlier for effective home programming, parent education, and the balance of intervention with parental needs to enjoy and bond with their infant.

For benefits of specific interventions considered in the guideline, see the "Major Recommendations" field.

Potential Harms

- Adverse effects of Botox include pain and bruising, temporary dysphagia, and neck weakness, all of which are reported to resolve.
- Identification of infants with congenital muscular torticollis (CMT) has the potential of increasing parental anxiety.
- Identification of red flags may cause additional family stress due to concerns about the infant having more serious health conditions.
- Examination of passive cervical rotation may result in sternocleidomastoid muscle snapping or a sense of "giving way" in approximately 8% of infants, which may or may not cause momentary infant discomfort; however, the documented long-term outcomes are positive.
- The infant may feel some discomfort or pain, and/or may cry due to restricted movement, discomfort with range of motion (ROM) tests, or intolerance of general handling.
- In infants with undiagnosed orthopedic conditions (e.g., osteogenesis imperfecta, hemivertebrae, or cervical instability), there is a risk that overly aggressive testing of passive ROM could cause secondary injury, though this has not been reported.
- Lack of determining a prognosis by either the referring pediatrician or the physical therapist may lead to underestimation of the severity of CMT, resulting in inadequate or untimely delivery of care and/or parent/caregiver confusion about what to expect.
- Parents/caregivers may apply interventions incorrectly.
- There is an unknown amount of risk that discharge from physical therapy services with 5° residual asymmetry will progress to other anatomical areas (cervical scoliosis, craniofacial) or return as the infant grows. There appears to be a slightly higher risk than general prevalence of developmental coordination disorder and attention-deficit hyperactivity disorder that is not associated with the type or severity of the CMT, although more studies are needed.

Qualifying Statements

Qualifying Statements

This guideline is intended for clinicians, family members, educators, researchers, policy makers, and payers. It is not intended to be construed or to serve as a legal standard of care. As rehabilitation knowledge expands, clinical guidelines are promoted as syntheses of current research and provisional proposals of recommended actions under specific conditions. Standards of care are determined on the basis of all clinical data available for an individual patient/client and are subject to change as knowledge and technology advance, patterns of care evolve, and patient/family values are integrated. This clinical practice guideline is a summary of practice recommendations that are supported with current published literature that has been reviewed by expert practitioners and other stakeholders. These parameters of practice should be considered guidelines only, not mandates. Adherence to them will not ensure a successful outcome in every patient, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate decision regarding a particular clinical procedure or treatment plan must be made using the clinical data presented by the patient/client/family, the diagnostic and treatment options available, the

patient's values, expectations, and preferences, and the clinician's scope of practice and expertise. The guideline development group suggests that significant departures from accepted guidelines should be documented in patient records at the time the relevant clinical decisions are made.

Implementation of the Guideline

Description of Implementation Strategy

Guideline Implementation Recommendations

A growing body of literature exists on the uptake of evidence into practice. The following suggestions are provided as possible strategies for clinicians to implement the action statements of this clinical practice guidelines (CPG), but are not an exhaustive review. Many variables affect the successful translation of evidence into practice; clinicians will need to assess their own practice structures, cultures, and clinical skills to determine how to best implement the action statements as individuals and how to facilitate implementation by others.

Strategies for Individual Implementation

- Keep a copy of the congenital muscular torticollis (CMT) CPG in a location that is easy to reference.
- Compare items in the recommended examination list to determine what should be added to an examination to increase adherence.
- Adapt examination forms to include a place to document each of the recommended measures.
- Seek training in the use of the recommended standardized measures and/or intervention approaches.
- Build relationships with referral sources to encourage early referral of infants.
- Measure individual service outcomes of care (e.g., patient effect across the International Classification of Functioning, Disability and Health [ICF] domains, costs, and parent/caregiver satisfaction).

Strategies for Facilitating CPG Implementation in Other Clinicians

- Recognize that adoption of the recommendations by others may require time for learning about the CMT CPG content, developing a positive attitude toward adopting the action statements, comparing what is already done with the recommended actions, trying selected changes in practice to determine their efficacy, and finally, routine integration of the tested changes.
- Identify early adopting clinicians as opinion leaders to introduce the guideline via journal clubs or staff presentations.
- Identify gaps in knowledge and skills following presentation of content to determine needs of staff for adopting recommendations.
- Use documentation templates to facilitate standardized collection and implementation of the recommended measures and actions.
- Institute quality assurance processes to monitor the routine collection of recommended data and implementation of recommendations, and to identify barriers to complete collection.
- Measure structural outcomes (e.g., dates of referral, equipment availability), process outcomes (e.g., use of tests and measures, breadth of plan of care), and service outcomes (e.g., patient effect across the ICF domains, costs, and parent/caregiver satisfaction).

Implementation Tools

Clinical Algorithm

Mobile Device Resources

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Patient-centeredness

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

Kaplan SL, Coulter C, Fetters L. Physical therapy management of congenital muscular torticollis: an evidence-based clinical practice guideline: from the Section on Pediatrics of the American Physical Therapy Association. Pediatr Phys Ther. 2013;25(4):348-94. [167 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2013

Guideline Developer(s)

American Physical Therapy Association, Section on Pediatrics - Medical Specialty Society

Source(s) of Funding

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Guideline Committee

Guideline Development group (GDG)

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

The authors declare no conflicts of interest.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available in PDF and EPUB for eReaders from Pediatric Physical Therapy Journal Web site .

Availability of Companion Documents

The following are available:

- Physical therapist's guide to torticollis. Available from the Move Forward PT Web site .
- Kaplan, S. L., Coulter, C., Fetters, L. Developing evidence-based physical therapy clinical practice guidelines. Pediatr Phys Ther. 2013; 25(3):257-70. Electronic copies: Available from the Pediatric Physical Therapy Journal Web site .

Supplemental digital content for this guideline is available from the Pediatric Physical Therapy Journal Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on June 12, 2014. The information was verified by the guideline developer on July 9, 2014.

Copyright Statement

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